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## Investigation of the effect of chemotherapeutic drugs on the multiple expression levels of the *KLKs*, *DDC*, *RNASEK* and *BCL2L12* genes in human breast and prostate cancer cells. New promising indicators for predicting chemotherapy response

Kladi-Skandali A, Mavridis K, Kontos CK, Sideris DC and Scorilas A  
University of Athens, Greece

It is well known that the reduction of breast and prostate cancer death rates represents the progress being made in earlier detecting and properly treating. Personalized medicine chemotherapeutic strategies are imperative. Kallikrein-related peptidase (KLKs), DDC, RNASEK and BCL2L12 genes have been studied on the multiple expression levels (mRNA, mRNA isoforms, miRNA, protein) in breast and prostate cancer cells as new potential biomarkers for personalized therapy.

Chemotherapeutic compounds such doxorubicin, epirubicin, mitoxantrone, docetaxel, taxol, cisplatin, carboplatin, oxaliplatin, navelbine etc were be administered to PC3, LNCaP, DU145 prostate and MCF7, BT20 breast cancer cell lines. Their cytotoxic effect will be evaluated via the MTT assay for assessing the viability and the proliferation of cells and the Trypan Blue method. The relative quantification of mRNA and miRNA levels was performed by using qRTPCR methodologies. GAPDH and HPRT1 served as an endogenous control genes. The expression of various proteins was studied using immunochemical methodologies.

Distinct modulations in the expression of the above genes are induced as a response of the cells to the administration of each drug. The most significant alterations were observed on the gene expression: KLK11 and KLK15 in the mitoxandrone treated - PC3 cells, BCL2L12 in Doxorubicin treated - DU145 cells, DDC and BCL2L12 in epirubicin and Docetaxel treated MCF7 - cells. miR224 and miR145 have been shown also significant alterations. Nevertheless, except DDC, non significant differences were observed in the protein levels.

Our results provide new promising predictive biomarkers of breast and prostate cancer cells' response to treatment.

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